

CLAIMS

1. A bioactive glass composition comprising SiO_2 , Na_2O , CaO , K_2O , MgO , P_2O_5 and B_2O_3 , **characterized** in that the amount of

SiO_2 is 51-56 wt-% of the starting oxides,
 Na_2O is 7-9 wt-% of the starting oxides,
 CaO is 21-23 wt-% of the starting oxides,
 K_2O is 10-12 wt-% of the starting oxides,
 MgO is 1-4 wt-% of the starting oxides,
 P_2O_5 is 0,5-1,5 wt-% of the starting oxides, and
 B_2O_3 is 0-1 wt-% of the starting oxides,

provided that the total amount of Na_2O and K_2O is 17-20 wt-% of the starting oxides.

2. A bioactive glass composition according to claim 1, **characterized** in that the amount of SiO_2 is 54-56 wt-% of the starting oxides.

3. A bioactive glass composition according to claim 1 or 2, **characterized** in that it further comprises Al_2O_3 up to 1 wt-% of the starting oxides provided that the total amount of B_2O_3 and Al_2O_3 is 0,5-2,5 wt-% of the starting oxides.

4. A bioactive glass composition according to any of the preceding claims, **characterized** in that the decrease of the amount of Na_2O and/or K_2O is compensated by the increase of the amount of Al_2O_3 and/or B_2O_3 .

5. Use of a bioactive glass composition according to any of the preceding claims in the coating of a device.

6. An implantable device, **characterized** in that it has been prepared from a bioactive glass composition according to any of the claims 1-4.

7. A fiber, **characterized** in that it has been prepared from a bioactive glass composition according to any of the claims 1-4

8. A sheet, **characterized** in that it has been prepared from a bioactive glass composition according to any of the claims 1-4.

9. A porous device, **characterized** in that it has been prepared from a bioactive glass composition according to any of the claims 1-4 by injecting pressurized gas into the molten glass composition.

10. A tissue engineering device, **characterized** in that it has been prepared from a bioactive glass composition according to any of the claims 1-4.

11. A method for manufacturing a repeatedly heat-treatable bioactive glass composition according to any of the claims 1-4, **characterized** in that it comprises the steps of

- a) heating a mixture of starting materials to a temperature of 1350-1450 °C for a period of essentially three hours,
- b) allowing the obtained melt to cool down to ambient temperature for at least twelve hours,
- c) crushing the obtained solid glass into pieces,
- d) reheating the crushed glass material to a temperature of 1350-1450 °C for a period of essentially three hours, and
- e) molding the obtained bioactive glass composition into desired shape and allowing it to cool down to ambient temperature.